

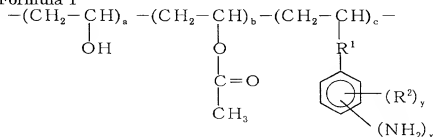
WHAT IS CLAIMED IS:

1. A highly permeable composite reverse osmosis membrane comprising a thin film and a microporous support to support the thin film,

wherein the thin film is formed by reacting (a) an amine component comprising at least one polyvinyl alcohol-based amine compound having at least two primary and secondary side chain amino groups; and (b) a component comprising at least one substantially monomeric compound having at least two groups that react with the amino groups.

2. The highly permeable composite reverse osmosis membrane according to claim 1, wherein the (a) amine component is represented by the following Formula 1:

Formula 1



wherein  $0 < a$ ,  $0 \leq b$ ,  $2 < c$ ,  $1 \leq x \leq 5$ ,  $0 \leq y \leq 4$ ;  $\text{R}^1$  is at least one group selected from the group consisting of an ether group, an alkylene group and an ester group; and  $\text{R}^2$  is at least one group selected from the group consisting of an alkyl group and a halogen group.

3. The highly permeable composite reverse osmosis membrane according to claim 1, wherein an amine component comprising at least one amine compound selected from the group consisting of aromatic, aliphatic and alicyclic polyfunctional amines is further comprised in addition to the (a) amine compound.

4. The highly permeable composite reverse osmosis membrane according to claim 1, wherein the (b) compound is an acid halide.

5. The highly permeable composite reverse osmosis membrane according to claim 4, wherein the (b) compound is at least one polyfunctional acid halide

compound selected from the group consisting of aromatic, aliphatic and alicyclic polyfunctional acid halide compounds.

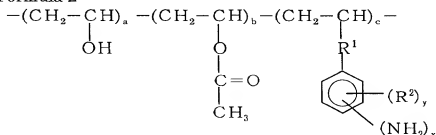
6. The highly permeable composite reverse osmosis membrane according to claim 1, wherein the permeable flux is at least  $1.0\text{m}^3/\text{m}^2\cdot\text{d}$  at an evaluation where a pH 6.5 aqueous solution comprising 500mg/liter of sodium chloride is used at an operation pressure of  $5\text{kg}/\text{cm}^2$  and at a temperature of  $25^\circ\text{C}$ .

7. The highly permeable composite reverse osmosis membrane according to claim 1, wherein the salt rejection is no more than 80% at an evaluation where a pH 6.5 aqueous solution comprising 500mg/liter of sodium chloride is used at an operation pressure of  $5\text{kg}/\text{cm}^2$  and at a temperature of  $25^\circ\text{C}$ .

8. A method of producing a highly permeable composite reverse osmosis membrane, wherein a reverse osmosis membrane is formed on a microporous support by contacting for interfacial polymerization reaction (a) a polar solvent solution comprising at least one polyvinyl alcohol-based amine compound having at least two primary and secondary side chain amino groups; and (b) at least one organic solvent solution selected from the group of substantially monomeric compounds having at least two groups that react with the amino groups.

9. The method according to claim 8, wherein the (a) amine component is represented by the following Formula 2:

Formula 2



wherein  $0 < a$ ,  $0 \leq b$ ,  $2 < c$ ,  $1 \leq x \leq 5$ ,  $0 \leq y \leq 4$ ;  $\text{R}^1$  is at least one group selected from the group consisting of an ether group, an alkylene group and an ester group; and  $\text{R}^2$  is at least one group selected from the group consisting of an alkyl group and a halogen group.